

CHAPTER Env-A 2600 PULP AND PAPER INDUSTRY: TOTAL REDUCED SULFUR EMISSIONS
FROM KRAFT MILLS

Statutory Authority: RSA 125-C:4, *I(a)*

Readopt with amendment Env-A 2601.01 and Env-A 2602.02, effective 3-28-98 (Document #6724-B), to read as follows:

PART Env-A 2601 PURPOSE

Env-A 2601.01 Purpose. The purpose of this chapter is to establish total reduced sulfur (*TRS*) emission standards for kraft mills.

PART Env-A 2602 ~~SCOPE~~***APPLICABILITY, REFERENCES, AND DEFINITIONS***

Env-A 2602.01 ~~Scope~~***Applicability***.

(a) This chapter shall apply to the following existing processes in kraft mills:

(1) *Brown stock washer system;*

(2) *Condensate stripper system;*

(~~13~~) Digester system;

(4) *Lime kiln; and*

(~~25~~) Multiple-effect evaporator system;

(~~3~~) ~~Recovery furnace;~~

—————(~~4~~) ~~Smelt dissolving tank; and~~

—————(~~5~~) ~~Lime kiln.~~

(b) An existing process shall be any of the processes listed in (a), above, that ***commenced construction or modification on or before September 24, 1976 and which*** is not subject to New Source Performance Standards (NSPS) for kraft mills specified at 40 CFR 60, Subpart BB.

Adopt Env-A 2602.02 to read as follows:

Env-A 2602.02 References. *For the purpose of this chapter, unless otherwise specified, the July 1, 2003 edition of title 40 of the Code of Federal Regulations (CFR) shall control all references to 40 CFR 60.*

Adopt Env-A 2602.03 to read as follows:

Env-A 2602.03 Definitions.

(a) *“Brown stock washer system” means “brown stock washer system” as defined in 40 CFR §60.281(e), namely “brown stock washers and associated knotters, vacuum pumps, and filtrate tanks used to wash the pulp following the digester system. Diffusion washers are excluded from this definition.”*

(b) *“Condensate stripper system” means “condensate stripper” as defined in 40 CFR §60.281(o), namely “a column, and associated condensers, used to strip, with air or steam, TRS compounds from condensate streams from various processes within a kraft mill.”*

(c) ***“Digester system” means “digester system” as defined in 40 CFR §60.281(d), namely “each continuous digester or each batch digester used for the cooking of wood in white liquor, and associated flash tank(s), blow tank(s), chip steaming vessel(s), and condenser(s).”***

(d) ***“Multiple-effect evaporator system” means “multiple-effect evaporator system” as defined in 40 CFR §60.281(f), namely “the multiple-effect evaporators and associated condenser(s) and hotwell(s) used to concentrate the spent cooking liquid that is separated from the pulp.”***

Readopt with amendment Env-A 2603.01 and Env-A 2606.01, effective 3-28-98 (Document #6724-B), to read as follows:

PART Env-A 2603 EMISSION STANDARDS FOR TOTAL REDUCED SULFUR (TRS)

Env-A 2603.01 Emission Standards for Total Reduced Sulfur (TRS). ~~No~~***The*** owner or operator subject to the provisions of this chapter shall ***not*** cause to be discharged into the atmosphere:

(a) From any ***brown stock washer system, condensate stripper system,*** digester system, or multiple-effect evaporator system, any gases which contain TRS in excess of 5 ***parts per million*** (ppm) by volume 12-hour average on a dry basis, corrected to 10 percent (%) oxygen (O_2), except this standard shall not apply if:

(1) The gases are combusted in a lime kiln subject to the provisions of ~~(db)~~; below or the requirements of 40 CFR §60.283(a)(5); or

(2) The gases are combusted in ~~an incinerator or other device~~ ***boiler or thermal oxidizer***, at a minimum temperature of 1200 ***degrees Fahrenheit*** ($^{\circ}F$) for at least 0.5 seconds; ***and***

~~(b) From any kraft recovery furnace, any gases which contain TRS in excess of 20 ppm by volume 12-hour average on a dry basis, corrected to 8 percent oxygen;~~

~~—— (c) From any smelt dissolving tank, any gases which contain TRS in excess of 0.016 g/kg (0.033 lb/ton) black liquor solids as H_2S ; and~~

~~(db)~~ From any lime kiln, any gases which contain TRS in excess of 20 ppm by volume 12-hour average on a dry basis, corrected to 10 ~~percent~~ ***percent*** O_2 .

PART Env-A 2604 MONITORING OF EMISSIONS AND OPERATIONS

Env-A 2604.01 Monitoring of Emissions.

(a) Any owner or operator subject to the provisions of this chapter shall install, calibrate, maintain, and operate continuous emissions monitoring systems (CEMS) to monitor and record the concentration of TRS emissions on a dry basis and the percent of ~~oxygen~~ O_2 by volume on a dry basis in the gases discharged into the atmosphere from each lime kiln ~~and recovery furnace~~.

(b) All CEMS required in (a), above, shall be located downstream from the control device(s) and shall also be subject to the requirements of Env-A ~~800~~ ***808***.

(c) The span value of a CEMS installed pursuant to this part shall be set;

(1) For TRS, such that the CEMS is capable of measuring TRS concentrations during normal process operation and during periods of startup, shutdown, and malfunction; and

(32) For O_2 , At 25 percent oxygen O_2 by volume on a dry basis for the continuous oxygen monitoring system.

(d) All CEMS installed pursuant to this section to monitor the concentration of TRS emissions and the percent ~~oxygen~~***O₂*** shall meet the sampling and performance criteria of 40 CFR §60.13, and Performance Specifications 3 and 5, respectively, of 40 CFR 60, Appendix B.

Env-A 2604.02 Monitoring of Operations. Any owner or operator subject to the provisions of this chapter shall install, calibrate, maintain, and operate the following continuous monitoring devices:

(a) For any ~~incinerator~~***boiler or thermal oxidizer***, a monitoring device which measures and records the combustion temperature at the point of incineration of effluent gases which are emitted from any ***brown stock washer system, condensate stripper system***, digester system, or multiple-effect evaporator system, where the provisions of Env-A 2603.01(a)(2) apply, and which shall be accurate within ***plus or minus (+/-)*** ~~one percent~~***1%*** of the temperature being measured;

(b) For any lime kiln ~~or smelt dissolving tank~~ using a scrubber emission control device:

(1) A monitoring device ~~which~~***that*** monitors and records the pressure loss of the gas stream through the control equipment, and which shall be certified by the manufacturer to be accurate to within a gauge pressure of +/- 500 pascals or +/- 2 inches water gauge pressure; and

(2) A monitoring device ~~which~~***that*** monitors and records the scrubbing liquid supply pressure to the control equipment, which shall:

a. Be certified by the manufacturer to be accurate within ~~15 percent~~***1%*** of design scrubbing liquid supply pressure; and

b. Have the pressure sensor or tap located within 50 feet of the scrubber liquid discharge point; ~~and~~.

~~(c) All CEMS required in this chapter shall include strip or circular chart recorders required by Env-A 800. An alternative method of data recording shall be approved by the director provided that the source submits written documentation demonstrating that the alternative method can provide a continuous record of values for gaseous emission concentrations equivalent to a strip or circular chart recorder.~~

PART Env-A 2605 RECORDKEEPING AND REPORTING REQUIREMENTS

Env-A 2605.01 Recordkeeping Requirements. Except where the provisions of Env-A 2603.01(a)(2) ~~or (c)~~ apply, any owner or operator subject to the provisions of this chapter shall:

(a) Calculate and record on a daily basis the 12-hour average TRS concentrations for the 2 periods of each operating day for ~~each recovery furnace and the~~ lime kiln;

(b) Calculate each 12-hour average required by (a), above as the arithmetic mean of the appropriate 12 contiguous 1-hour average TRS concentrations provided by each CEMS installed under Env-A 2604.01(a);

(c) Calculate and record on a daily basis 12-hour average ~~oxygen~~***O₂*** concentrations for the 2 consecutive periods of each operating day for ~~each recovery furnace and the~~ lime kiln, which 12-hour averages shall correspond to the 12-hour average TRS concentrations pursuant to (a), above; and

(d) Calculate each 12-hour average required by (c), above as an arithmetic mean of the appropriate 12 contiguous 1-hour average ~~oxygen~~***O₂*** concentrations provided by each CEMS installed under Env-A 2604.01(a).

Env-A 2605.02 Calculation of Oxygen Concentration Correction Factor.

(a) To correct all 12-hour average TRS concentrations from a lime kiln to 10 percent% oxygen O_2 by volume and all 12-hour average TRS concentrations from a recovery furnace to 8 percent oxygen by volume for the purposes of (b), below, the following shall apply:

- (1) “C_{corr}” means the TRS concentration dry basis corrected for oxygen O_2 ;
- (2) “C_{meas}” means the TRS concentration dry basis uncorrected for oxygen O_2 ;
- (3) “X” means the volumetric oxygen O_2 concentration dry basis in percentage, which shall be 8 percent for recovery furnaces and 10 percent% for lime kilns; and
- (4) “Y” means the measured 12-hour average volumetric oxygen O_2 concentration on a dry basis.

(b) To correct all 12-hour average TRS concentrations from a lime kiln to 10 percent% oxygen O_2 by volume and all 12-hour average TRS concentrations from a recovery furnace to 8 percent oxygen by volume, the owner or operator subject to the provisions of this chapter shall calculate the difference between 21 and X, divide the difference by the difference between 21 and Y, and then multiply the result by C_{meas}, as in the formula below:

$$C_{\text{corr}} = C_{\text{meas}} \times (21 - X)/(21 - Y)$$

Env-A 2605.03 Reporting Requirements.

(a) Any owner or operator subject to the provisions of this chapter shall submit to the ~~director~~***department*** an ~~written~~ excess emissions report as specified in (b) ~~through~~***and (fc)***, below, for each calendar quarter, postmarked by the 30th day following the end of each calendar quarter.

~~(b) For emissions from any kraft recovery furnace, periods of excess emissions shall be all 12-hour averages of TRS concentrations above 20 ppm by volume on a dry basis corrected to 8 percent oxygen.~~

(eb) Excess emissions shall be:

(1) For TRS emissions from any lime kiln, periods of excess emissions shall be all any 12-hour average TRS concentrations above 20 ppm by volume on a dry basis corrected to 10 percent% oxygen O_2 , except for excess emissions that occur for not longer than 2% in a calendar quarter, excluding periods of startup, shutdown, and periods when the facility is not operating.

(d2) For TRS emissions from any brown stock washer system, condensate stripper system, digester system, or multiple-effect evaporator system periods of excess emissions shall be:

(1)a. All periods in excess of 15 minutes and their durations during which the non-condensable emissions are emitted uncontrolled, where the provisions of Env-A 2603.01(a)(1) normally apply; and

(2)b. All periods in excess of 15 minutes and their durations during which the combustion temperature at the point of incineration is less than 1200°F, where the provisions of Env-A 2603.01(a)(2) apply.

(ec) For all gaseous CEMS, daily averages of TRS concentrations ppm by volume on a dry basis, including corrected and uncorrected values, and percent oxygen O_2 by volume on a dry basis shall be presented in the excess emission report for each day of the reporting period whether or not excess emissions have occurred.

~~(f) The director shall not consider periods of excess emissions reported under this section to be indicative of a violation of this chapter provided that:~~

- ~~_____ (1) The period of time per day during which the non-condensable emissions from the digester(s) and/or multiple-effect evaporator(s) are not sent to either a lime kiln under Env-A 2603.01(a)(1) or an incinerator under Env-A 2603.01(a)(2) does not exceed 15 minutes; or~~
- ~~_____ (2) The percent of time in a calendar quarter, excluding periods of startup, or shutdown, and periods when the facility is not operating, during which excess emissions occur does not exceed:~~
 - ~~_____ a. For TRS emissions from recovery furnaces, one percent; or~~
 - ~~_____ b. For TRS emissions from lime kilns where the provisions of Env-A 2604.01(a) apply, 2 percent.~~

PART Env-A 2606 TEST METHODS

Env-A 2606.01 Test Methods.

(a) For the purpose of determining compliance with Env-A 2603.01, the following EPA Reference Methods from Appendix A of 40 CFR 60 shall be used:

- (1) Method 16, Method 16A, or Method 16B for the concentration of TRS; and
- (2) Methods 1, 2, 3 or 3A, and 4, as applicable.

~~(b) For the purposes of (c) below, the following shall apply:~~

- ~~_____ (1) "E" means the mass of TRS emitted per unit of black liquor solids in g/kg or lb/ton;~~
- ~~_____ (2) " C_{trs} " means the averaged combined concentrations of TRS in ppm as determined by Method 16, 16A, or 16B during the test period;~~
- ~~_____ (3) "F" means 0.001417 g $\text{H}_2\text{S}/\text{m}^3$ ppm for metric units and means 0.08844×10^{-6} lb $\text{H}_2\text{S}/\text{ft}^3$ ppm for English units;~~
- ~~_____ (4) " Q_{sd} " means dry volumetric stack gas flow rate corrected to standard conditions in dscm/hr or dscf/hr; and~~
- ~~_____ (5) "BLS" means black liquor solids feed rate in kg/hr or ton/hr.~~

~~_____ (c) When determining compliance with Env-A 2603.01(c), the tester shall use the results of the methods stated in (a), above as well as calculate the black liquor solids feed rate by multiplying C_{TRS} by F and then multiply the result by Q_{sd} and then divide the result by BLS, as in the formula below:~~

$$E = (C_{\text{trs}})(F)(Q_{\text{sd}})/\text{BLS}.$$

~~(db)~~ All concentrations of TRS required to be measured by Env-A 2604.01 from lime kilns shall be corrected to 10 percent% oxygen O_2 by volume and those concentrations from recovery furnaces shall be corrected to 8 percent oxygen by volume, which corrections shall be made in the manner specified in Env-A 2605.02.

~~(ec)~~ The ~~director~~***department***, with the approval of the EPA, shall approve different test methods, in accordance with Env-A 800809, from those specified in ~~Env-A 2606.01(a)~~ and ~~(gb)~~ ***above***.

Repeal Env-A 2607, effective 3-28-98 (Doc. #6724-B), as follows:

PART ~~Env A 2607~~ PERMIT, FEE, TESTING, MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS

~~Env A 2607.01 Permit, Fee, Testing, Monitoring, Recordkeeping and Reporting Requirements.~~
Sources or devices subject to this chapter shall comply with the following, where applicable:

~~(a) Permit requirements specified in Env A 600;~~

~~(b) Fees established in Env A 700;~~

~~(c) Testing and monitoring requirements specified in Env A 800 unless otherwise required in Env A 2604 and Env A 2606; and~~

~~(d) Recordkeeping and reporting requirements specified in Env A 900 unless otherwise required in Env A 2605.~~

Appendix

Provision of the Proposed Rule	Specific State or Federal Statutes or Regulations which the Rule is Intended to Implement
Env-A 2601	RSA 125-C:4, I(a)
Env-A 2602	RSA 125-C:4, I(a); 40 CFR §§60.280 and 60.281
Env-A 2603	RSA 125-C:4, I(a); 40 CFR §60.283
Env-A 2604 and 2605	RSA 125-C:4, I(a); 40 CFR §60.284
Env-A 2606	RSA 125-C:4, I(a); 40 CFR §60.285
Env-A 2607 (repealed)	RSA 125-C:4, I(a)